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| Mr. Michael T. Davis  Calculus | | Section 3.1 & 3.2 Practice Quiz  December 5, 2016 | |
| Name: | |

1. Sketch the graph of a continuous function that has the following properties:



i. ,



ii. .

1. Sketch the graph of a continuous function that has the following properties:



i.,

ii..

1. Write an equation for a linear function that has the following properties:



i. ,



ii. .



1. Sketch the graph of a function that has the following properties:



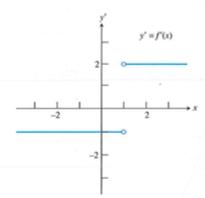
i. ,



ii. The graph of , the derivative of , is as shown in the figure on the left below,



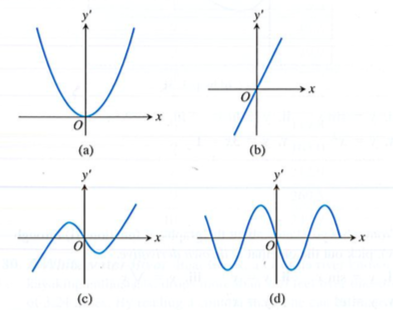
iii.  is continuous for all x.

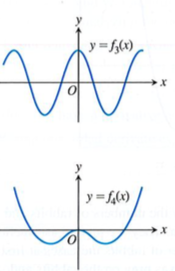
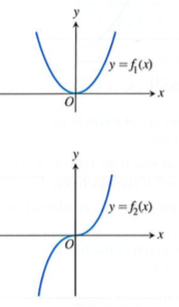


1. Show that the function  has left-hand and right-hand derivatives at , but no derivative at . You may use the derivative rules here.

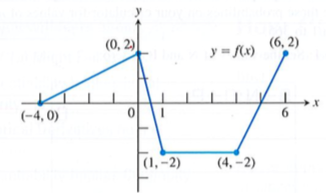


1. Use the definition  to find the derivative of the function  at . You may not use the derivative rules here.
2. Use the definition  to find the derivative of the function  at . You may not use the derivative rules here.
3. Match the graph of each function shown at the bottom with its derivative function shown immediately below.





1. If  and , write an equation of the tangent line to the graph of  at the point where .
2. If  and , write an equation of the normal line to the graph of  at the point where .
3. The graph of the function  shown here is made of the line segments joined end to end.
4. Graph the function’s derivative function.
5. At what values of x between  and  is the function not differentiable?



1. Determine the value(s) of x for which the function  is not differentiable.
2. Given the function , determine the numerical derivative of the given function at the point  using .
3. The derivative function for  is . Is the function  differentiable for all elements of its domain? If not, explain why not.
4. The graph of a function is shown below. State the values of x for which the function is not differentiable.

